

AMBIENT AIR MONITORING ANNUAL REPORT
THREE CREEKS
986B STATION

JOB #:8449-2016-67- A

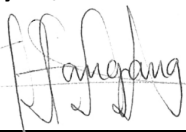
JANUARY - DECEMBER
2016

Prepared for:

THREE CREEKS
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T2N 2J1

Attention: KARLA REESOR

DATE: **February 28, 2017**

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SUMMARY

In 2016, Maxxam Analytics was contracted to manage the ambient air quality monitoring and maintenance activities at the Three Creeks 986b Station, near Peace River Oil Sands Area 2, Alberta. The monitoring station provides continuous meteorological measurements and air quality data for compliance parameters, as requested by the PRAMP Committee.

Data presented in this report has undergone the Post-Final Validation Procedures, which include a cursory inspection of annual charts. If errors or omissions in the data are suspected or discovered after the initial submittal of data (monthly report), the post-validation step serves to re-evaluate the affected data. The report certification form is also included in this report to verify that the annual validation review has been completed, as per the Reporting Chapter (Chapter 9) of the Air Monitoring Directive (AMD).

Statistical summaries for monthly mean, maximum, and minimum values as well as comparisons to historical values from 2015 are presented on the following pages.

Any deviations or modifications made to the sampling or analytical methods during the monitoring period are outlined in Section 1.0 Discussion. On this basis, Maxxam is issuing this completed report to Three Creeks, 986b Station.

Should you have any questions concerning the results or if we can be of further assistance, please contact us at 403-219-3661 or toll-free at 1-800-386-7247.

TABLE OF CONTENTS

<u>Title</u>	<u>Page</u>
1.0 Discussion	3
2.0 Project Personnel	9
3.0 Plant Monthly Required AMD Summary	9
4.0 Calculations and Results	9
5.0 Methods and Procedures	10
Appendix I	
Continuous Monitoring Data Results	11
Sulphur Dioxide	12
Total Reduced Sulphur	18
Total Hydrocarbon	24
Methane	30
Non-Methane Hydrocarbon	36
Wind Speed	42
Relative Humidity	48
Barometric Pressure	52
Ambient Temperature	56
Station Temperature	60
Appendix II	
Report Certification Form	64

1.0 Discussion

This annual validation report consists of data for parameters Sulphur Dioxide (SO₂), Total Reduced Sulphur (TRS), Total Hydrocarbon (THC), Methane (CH₄), Non-Methane Hydrocarbon (NMHC), Relative Humidity (RH), Barometric Pressure (BP), Ambient Temperature (AmbTPX), Station Temperature (StnTPX) and Wind Speed (WS).

The air monitoring trailer was located at Latitude 56°22'34.0"N and Longitude 116°56'25.9"W for the monitoring period.

The monitoring methods and equipment met all AMD requirements.

All monitoring analyzers and meteorological systems, with the exception of THC/CH₄/NMHC in July and August 2016, met the 90% operational uptime requirements during the monitoring period.

All data collected during the monitoring period were within the objectives outlined in the Alberta Ambient Air Quality Objectives and Guidelines Summary (AAAQOs).

An external ambient air monitoring station audit was performed by AEMERA on March 8. Audit report was included in the monthly report for March 2016.

Notification of Changes Made After Monthly Report Issuance

- **Wind Speed Calculated Averages:** In the 2016 monthly reports and 2015 annual report, calculated averages for wind speed and wind direction were presented as arithmetic averages of the individual hourly data. When comparing monthly statistics, the arithmetic averages for wind speed will be higher than vector-averages, calculated from the same hourly data. In this annual report, the 24-Hr and monthly wind speed averages for both 2015 and 2016 were derived using vector averaging.

The summaries of the monthly maintenance report for the monitoring period are presented below:

SULPHUR DIOXIDE (SO2)

No issue was identified this year.

January	No operational issues were identified this month.
February	No operational issues were identified this month.
March	An external audit was conducted by AEMERA on March 8. One hour of data was lost on March 18 due to a malfunction of the polling system software.
April	The channel was placed in "maintenance" mode on April 26 at hour 14 while the temperature/humidity sensor was being replaced, this caused one hour of downtime.
May	Twenty-five hours of downtime were recorded in May due to power failures that occurred on May 14 and May 19.
June	No operational issues were identified this month.
July	No operational issues were identified this month.
August	No operational issues were identified this month.
September	No operational issues were identified this month.
October	Four hours of data are missing on October 25, from hours 07:00 to 10:00, due to a power failure. Data collected, at hour 11:00, was also invalidated as the analyzer was recovering from the power failure.
November	No operational issues were identified this month.
December	No operational issues were identified this month.

TOTAL REDUCED SULPHUR (TRS)

January	Thirty-five hour of data between January 19 hour 5 and January 20 hour 15 were lost this month due to an analyzer malfunction.
February	A repeat calibration was performed on February 23 to assess the analyzer after a biased high span drift, five hours of downtime were incurred.
March	An external audit was conducted by AEMERA on March 8. One hour of data was lost on March 18 due to a malfunction of the polling system software.
April	The channel was placed in "maintenance" mode on April 26 at hour 14 while the temperature/humidity sensor was being replaced, this caused one hour of downtime.
May	Twenty-five hours of downtime were recorded in May due to power failures that occurred on May 14 and May 19.
June	No operational issues were identified this month.
July	Twenty-five hours of downtime were recorded in May due to power failures that occurred on May 14 and May 19.
August	The analyzer spanned towards the lower acceptance limit on August 6. A repeat span check was performed on August 7 to ascertain analyzer performance but the result was outside acceptance limits. A successful repeat calibration was completed on August 8 following maintenance on the zero/span system. As this event impacted only the zero/span system and not analyzer performance, no data was discarded. However, six hours of downtime were recorded due to the additional quality checks.
September	Ten hours of downtime were recorded due to a converter maintenance event.

October	Four hours of data are missing on October 25, from hours 07:00 to 10:00, due to a power failure. Data collected, at hour 11:00, was also invalidated as the analyzer was recovering from the power failure.
November	No operational issues were identified this month.
December	One hour of downtime was recorded on December 6. The analyzer exhibited a biased high span response, prompting an additional quality check.

TOTAL HYDROCARBONS (THC), METHANE (CH₄), and NON-METHANE HYDROCARBONS (NMHC)

January	Two hours of downtime were recorded this month due to parts replacement events on January 7 and January 20.
February	No operational issues were identified this month.
March	An external audit was conducted by AEMERA on March 8. One hour of data was lost on March 18 due to a malfunction of the polling system software.
April	No operational issues were identified this month.
May	Fourteen hours of data were lost from May 9 hour 19 to May 10 hour 8 as the analyzer ran out of Hydrogen gas. Twenty-five hours of downtime were recorded in May due to power failures that occurred on May 14 and May 19.
June	No operational issues were identified this month.
July	The analyzer failed an as-found points check on August 4 due to a pump failure. Data was invalidated back to the point where there was a minor shift in the daily span readings; this was determined to be on July 18 at hour 22:00. Three hundred and fourteen hours of data were lost in July due to this event. The operational uptime was 57.8% in July.
August	The analyzer failed an as-found points check on August 4 due to a pump failure. Data was invalidated back to the point where there was a minor shift in the daily span readings; this was determined to be on July 18 at hour 22:00. Eighty-eight hours of data were lost in August due to this event. Following a shut-down calibration on August 8, the pump was replaced and a successful installation calibration was completed afterwards. Seven more hours of downtime were recorded due to the additional calibrations. The operational uptime was 87.2% in August.
September	Fifteen hours of downtime were recorded this month. Thirteen hours were attributed to the analyzer flaming out on September 6, due to low fuel gas pressure. The other two hours were due to maintenance performed on the fuel gas cylinder regulator, followed by an additional span check to verify analyzer performance.
October	Four hours of data are missing on October 25, from hours 07:00 to 10:00, due to a power failure. Data collected, at hour 11:00, was also invalidated as the analyzer was recovering from the power failure.
November	Thirty-six hours of downtime were recorded between November 5 and November 6, as the analyzer ran out of gas.
December	No operational issues were identified this month.

WIND SYSTEM

January	No operational issues were identified this month.
February	No operational issues were identified this month.
March	One hour of data was lost on March 18 due to a malfunction of the polling system software.
April	The channel was placed in "maintenance" mode on April 26 at hour 14 while the temperature/humidity sensor was being replaced, this caused one hour of downtime.
May	The RM Young 5103VK S/N: 65521 wind system was replaced with the RM Young 5103VK S/N: 43711 on May 10 for maintenance purposes. Twenty-five hours of downtime were recorded in May due to power failures that occurred on May 14 and May 19.
June	No operational issues were identified this month.
July	No operational issues were identified this month.
August	No operational issues were identified this month.
September	No operational issues were identified this month.
October	Four hours of data are missing on October 25, from hours 07:00 to 10:00, due to a power failure.
November	No operational issues were identified this month.
December	No operational issues were identified this month.

RELATIVE HUMIDITY (RH)

January	No operational issues were identified this month.
February	No operational issues were identified this month.
March	One hour of data was lost on March 18 due to a malfunction of the polling system software.
April	The sensor #60192621 was replaced with the sensor #610123322 on April 26. The replacement sensor was verified using the reference sensor Fluke 1551A #4295 before it was installed.
May	The humidity sensor was audited with the reference sensor; Bruntun ADC, on May 10 and no issues were identified. Twenty-five hours of downtime were recorded in May due to power failures that occurred on May 14 and May 19.
June	No operational issues were identified this month.
July	No operational issues were identified this month.
August	No operational issues were identified this month.
September	No operational issues were identified this month.
October	Four hours of data are missing on October 25, from hours 07:00 to 10:00, due to a power failure.
November	No operational issues were identified this month.
December	No operational issues were identified this month.

BAROMETRIC PRESSURE (BP)

January	No operational issues were identified this month.
February	No operational issues were identified this month.
March	One hour of data was lost on March 18 due to a malfunction of the polling system software.
April	The channel was placed in "maintenance" mode on April 26 at hour 14 while the temperature/humidity sensor was being replaced, this caused one hour of downtime.
May	The barometer was audited with the reference barometer; Bruntun ADC, on May 10 and no issues were identified. Twenty-five hours of downtime were recorded in May due to power failures that occurred on May 14 and May 19.
June	No operational issues were identified this month.
July	On July 12, the barometer was audited with the reference barometer (Bruntun ADC, S/N: 05535); no issues were identified.
August	No operational issues were identified this month.
September	No operational issues were identified this month.
October	Four hours of data are missing on October 25, from hours 07:00 to 10:00, due to a power failure.
November	No operational issues were identified this month.
December	No operational issues were identified this month.

AMBIENT TEMPERATURE (TPX)

January	No operational issues were identified this month.
February	No operational issues were identified this month.
March	One hour of data was lost on March 18 due to a malfunction of the polling system software.
April	The sensor #60192621 was replaced with the sensor #610123322 on April 26. The replacement sensor was verified using the reference sensor Fluke 1551A #4295 before it was installed.
May	The thermometer was audited with the reference thermometer; fluke 1551A EX (S/N: 2329070), on May 10 and no issues were identified. Twenty-five hours of downtime were recorded in May due to power failures that occurred on May 14 and May 19.
June	No operational issues were identified this month.
July	No operational issues were identified this month.
August	No operational issues were identified this month.
September	No operational issues were identified this month.
October	Four hours of data are missing on October 25, from hours 07:00 to 10:00, due to a power failure.
November	No operational issues were identified this month.
December	No operational issues were identified this month.

STATION TEMPERATURE (STNTPX)

January	No operational issues were identified this month.
February	No operational issues were identified this month.
March	One hour of data was lost on March 18 due to a malfunction of the polling system software.
April	The channel was placed in "maintenance" mode on April 26 at hour 14 while the temperature/humidity sensor was being replaced, this caused one hour of downtime.
May	Twenty-five hours of downtime were recorded in May due to power failures that occurred on May 14 and May 19.
June	No operational issues were identified this month.
July	No operational issues were identified this month.
August	No operational issues were identified this month.
September	No operational issues were identified this month.
October	Four hours of data are missing on October 25, from hours 07:00 to 10:00, due to a power failure.
November	No operational issues were identified this month.
December	No operational issues were identified this month.

NMHC CANISTER EVENTS

The canister sampler is programmed to draw in a whole air sample when the 5-minute average concentration of NMHC is above 0.30 ppm. A representative sample of ambient air is collected over a one-hour period when the canister event is triggered.

The following canister events were recorded in 2016. The date, time and 5-minute concentration measurements are as follows.

- January 2 at 11:45 - 0.35 ppm
- January 4 at 15:55 - 0.65 ppm
- January 5 at 18:30 - 0.35 ppm
- January 12 at 18:55 - 0.49 ppm
- January 13 at 16:55 - 0.46 ppm
- January 24 at 15:50 - 0.48 ppm
- March 31 at 08:55 - 0.55 ppm
- May 23 at 02:25 - 0.33 ppm
- June 7 at 22:25 - 0.34 ppm
- October 5 at 18:40 - 0.43 ppm

2.0 Project Personnel

Karla Reesor was the contact for Three Creeks, and the Maxxam field sampling team consisted of Raja Ashraf, Limin Li, Christopher Wesson, and Rusell Kirchner.

3.0 Plant Monthly Required AMD Summary

All data collected during the monitoring period were within the objectives as outlined in the AAAQOs.

The operational uptime for all analyzers and meteorological system, with the exception of THC/CH₄/NMHC in July and August 2016, was above the 90% requirement.

4.0 Calculations and Results

All calculations and reporting of results follow the method described in the Air Monitoring Directive, 1989, 2006 Amendments to the Air Monitoring Directive, 1989 (AMD 2006) as well as AMD 2015.

5.0 Methods and Procedures

The following methods and procedures were used to complete the test program:

Maxxam AIR SOP-00001 - Methane, Non-Methane Hydrocarbon Analyzer
Monitoring
Maxxam AIR SOP-00208: RM Young Monitor Calibration
Maxxam AIR SOP-00209: Ambient Sulphur Monitoring

There were no deviations from the prescribed methods.

The following instruments were used to perform the test program:

Sulphur Dioxide - Thermo 43C UV Fluorescent Analyzer
Total Reduced Sulphur - Thermo 43i UV Fluorescent Analyzer
Methane, Non-Methane Hydrocarbon - Thermo 55i FID Analyzer
Wind System - RM Young Unit
Relative Humidity - Campbell Scientific Unit
Barometric Pressure - Met One Unit
Ambient Temperature - Campbell Scientific Unit
Station Temperature - Maxxam Supplied Unit
Datalogger - ESC 8832

APPENDIX I
CONTINUOUS MONITORING DATA RESULTS

SULPHUR DIOXIDE

SULPHUR DIOXIDE (SO₂) 2016 Monthly Averages and Frequency Distributions of One Hour Readings

Month	Number of Readings*	Operational Time (%)	% Readings in Concentration Range (PPB SO ₂)						OBJECTIVES**		EXCEEDENCES		MONTHLY AVERAGE (PPB)
			≤ 20 ppb	20 < C ≤ 60 ppb	60 < C ≤ 110 ppb	110 < C ≤ 170 ppb	170 < C ≤ 340 ppb	> 340 ppb	1-HR	24-HR	1-HR	24-HR	
January	707	100.0	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	172	48	0	0	0.3
February	661	100.0	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	172	48	0	0	0.2
March	705	99.9	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	172	48	0	0	0.4
April	685	99.9	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	172	48	0	0	0.2
May	675	96.0	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	172	48	0	0	0.0
June	685	100.0	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	172	48	0	0	0.2
July	703	100.0	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	172	48	0	0	0.2
August	705	100.0	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	172	48	0	0	0.2
September	685	100.0	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	172	48	0	0	0.1
October	701	99.3	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	172	48	0	0	0.2
November	685	100.0	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	172	48	0	0	0.2
December	706	100.0	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	172	48	0	0	0.2
											ANNUAL AVERAGE		0.2

N/D - Valid Data Not Available

*Number of Readings - included calibration hours

**If Alberta Ambient Air Quality Objectives are not available, N/D is used.

Alberta Ambient Air Quality Objectives Annual Average**	8.0	PPB
Annual Average for 2016	0.2	PPB



THREE CREEKS
 986b Station - 2016
 JOB # 8449-2016-67- A

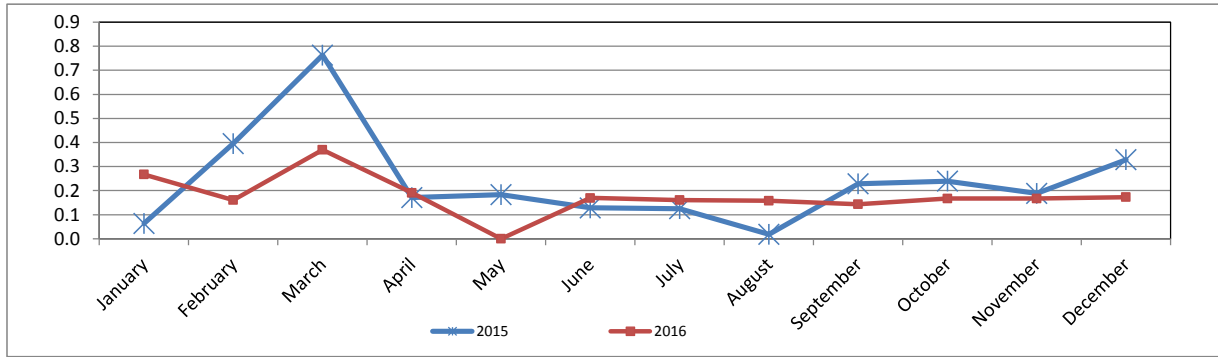
SULPHUR DIOXIDE (SO₂) 2015 One-Hour Readings vs. 2016 One-Hour Readings in PPB

Month	2015			2016			Difference
	MEAN	MINIMUM	MAXIMUM	MEAN	MINIMUM	MAXIMUM	
January	0.1	0.0	1.0	0.3	0.0	2.4	-0.2
February	0.4	0.0	2.0	0.2	0.0	1.5	0.2
March	0.8	0.0	2.0	0.4	0.0	2	0.4
April	0.2	0.0	2.0	0.2	0.0	1.8	0.0
May	0.2	0.0	1.0	0.0	0.0	0	0.2
June	0.1	0.0	2.0	0.2	0.0	4.8	0.0
July	0.1	0.0	1.0	0.2	0.0	1.3	0.0
August	0.0	0.0	2.0	0.2	0.0	1.1	-0.1
September	0.2	0.0	1.0	0.1	0.0	1.6	0.1
October	0.2	0.0	2.0	0.2	0.0	1.1	0.1
November	0.2	0.0	2.0	0.2	0.0	1.6	0.0
December	0.3	0.0	2.0	0.2	0.0	1.6	0.2

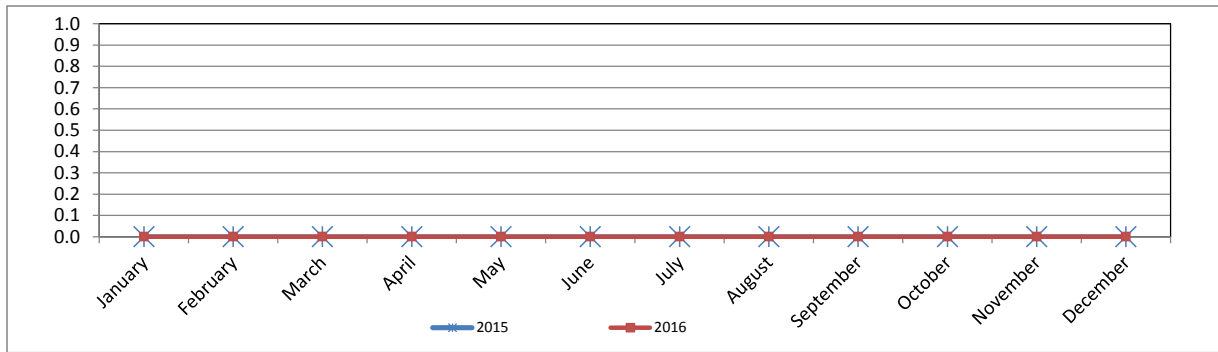
N/D - Valid Data Not Available

*Annual peak is bolded and highlighted.

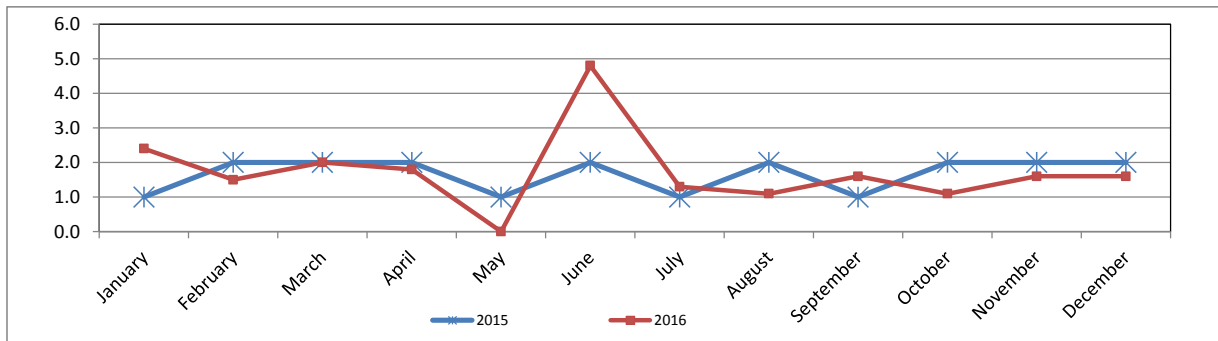
SULPHUR DIOXIDE (SO2) 2015 Monthly Mean vs. 2016 Monthly Mean in PPB



SULPHUR DIOXIDE (SO2) 2015 Monthly Minimum vs. 2016 Monthly Minimum in PPB



SULPHUR DIOXIDE (SO2) 2015 Monthly Maximum vs. 2016 Monthly Maximum in PPB

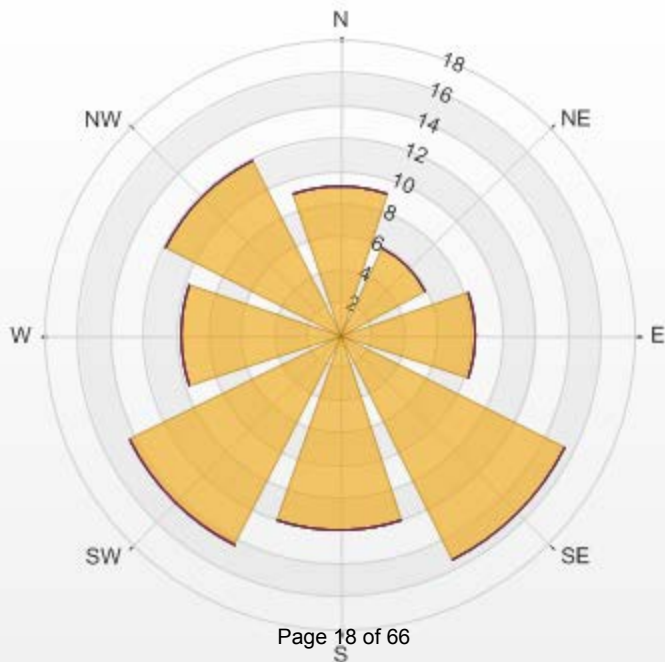


Wind: THREE CREEKS #986 TRAILER Poll.: THREE CREEKS #986 TRAILER-SO2[ppb] Periodically: 2016/01/01 00:00-2016/12/31 23:00 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 13.39% Valid Data: 94.43% Calm Avg: 0.22 [ppb]

Direction	0-3	3-10	10-85	85-170	>170.0	Total
N	9.15	0	0	0	0	9.15
NE	5.91	0	0	0	0	5.91
E	8.27	0.02	0	0	0	8.29
SE	15.33	0	0	0	0	15.33
S	11.98	0	0	0	0	11.98
SW	14.33	0.01	0	0	0	14.34
W	9.73	0.01	0	0	0	9.74
NW	11.86	0	0	0	0	11.86
Summary	86.56	0.04	0	0	0	86.6

% Icon Classes (ppb) 87 0-3 0 3-10 0 10-85 0 85-170 0 >170.0

THREE CREEKS #986 TRAILER Poll.: THREE CREEKS #986 TRAILER-SO2[ppb] 2016/01/01 00:00 - 2016/12/31
23:00 Calm: 13.39% Calm Poll Avg: 0.22[ppb]



TOTAL REDUCED SULPHUR

TOTAL REDUCED SULPHUR (TRS) 2016 Monthly Averages and Frequency Distributions of One Hour Readings

Month	Number of Readings*	Operational Time (%)	% Readings in Concentration Range (PPB TRS)				OBJECTIVES**		EXCEEDENCES		MONTHLY AVERAGE
			≤ 3 ppb	4 < C ≤ 10 ppb	11 < C ≤ 50 ppb	> 50 ppb	1-HR	24-HR	1-HR	24-HR	
January	671	94.8	100.00%	0.00%	0.00%	0.00%	-	-	-	-	0.4
February	652	98.9	100.00%	0.00%	0.00%	0.00%	-	-	-	-	0.3
March	705	99.9	99.86%	0.14%	0.00%	0.00%	-	-	-	-	0.4
April	685	99.9	99.85%	0.15%	0.00%	0.00%	-	-	-	-	0.3
May	674	96.0	100.00%	0.00%	0.00%	0.00%	-	-	-	-	0.4
June	684	100.0	100.00%	0.00%	0.00%	0.00%	-	-	-	-	0.3
July	692	98.3	100.00%	0.00%	0.00%	0.00%	-	-	-	-	0.5
August	698	99.2	98.57%	1.43%	0.00%	0.00%	-	-	-	-	0.6
September	676	98.6	99.26%	0.74%	0.00%	0.00%	-	-	-	-	0.4
October	702	99.3	100.00%	0.00%	0.00%	0.00%	-	-	-	-	0.3
November	684	100.0	100.00%	0.00%	0.00%	0.00%	-	-	-	-	0.3
December	705	99.9	100.00%	0.00%	0.00%	0.00%	-	-	-	-	0.3
ANNUAL AVERAGE										0.4	

N/D - Valid Data Not Available

*Number of Readings - included calibration hours

**If Alberta Ambient Air Quality Objectives are not available, N/D is used.

Alberta Ambient Air Quality Objectives Annual Average**	N/D	PPB
Annual Average for 2016	0.4	PPB

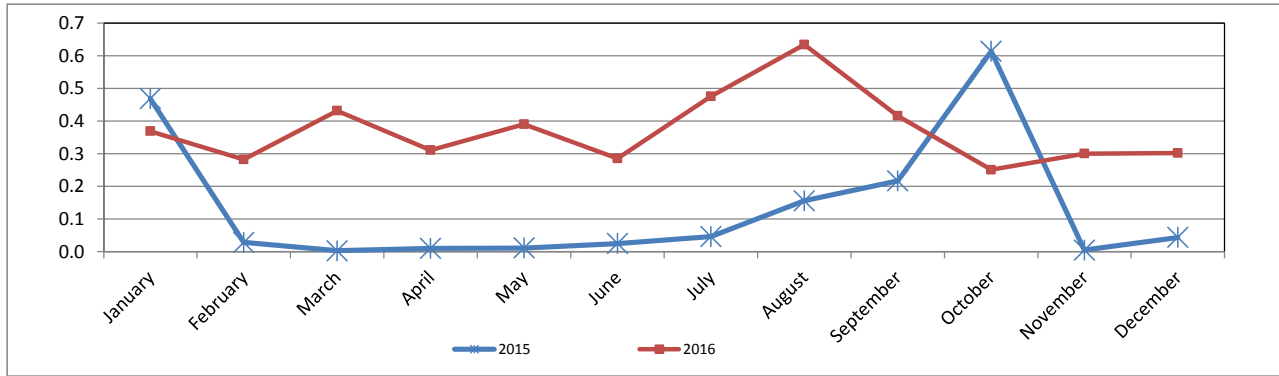
TOTAL REDUCED SULPHUR (TRS) 2015 One-Hour Readings vs. 2016 One-Hour Readings in PPB

Month	2015			2016			Difference
	MEAN	MINIMUM	MAXIMUM	MEAN	MINIMUM	MAXIMUM	
January	0.5	0.0	1.0	0.4	0.0	1.0	0.1
February	0.0	0.0	1.0	0.3	0.0	0.9	-0.3
March	0.0	0.0	1.0	0.4	0.0	3.4	-0.4
April	0.0	0.0	1.0	0.3	0.0	3.6	-0.3
May	0.0	0.0	1.0	0.4	0.1	1.1	-0.4
June	0.0	0.0	1.0	0.3	0.0	0.8	-0.3
July	0.0	0.0	1.0	0.5	0.0	2.0	-0.4
August	0.2	0.0	1.0	0.6	0.0	5.6	-0.5
September	0.2	0.0	3.0	0.4	0.0	6.5	-0.2
October	0.6	0.0	8.0	0.3	0.0	2.7	0.4
November	0.0	0.0	1.0	0.3	0.1	1.2	-0.3
December	0.0	0.0	1.0	0.3	0.0	1.3	-0.3

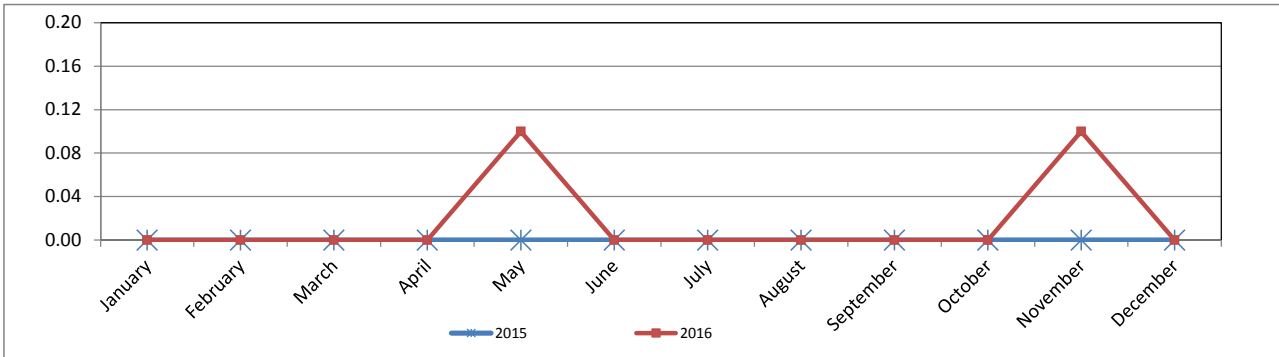
N/D - Valid Data Not Available

*Annual peak is bolded and highlighted.

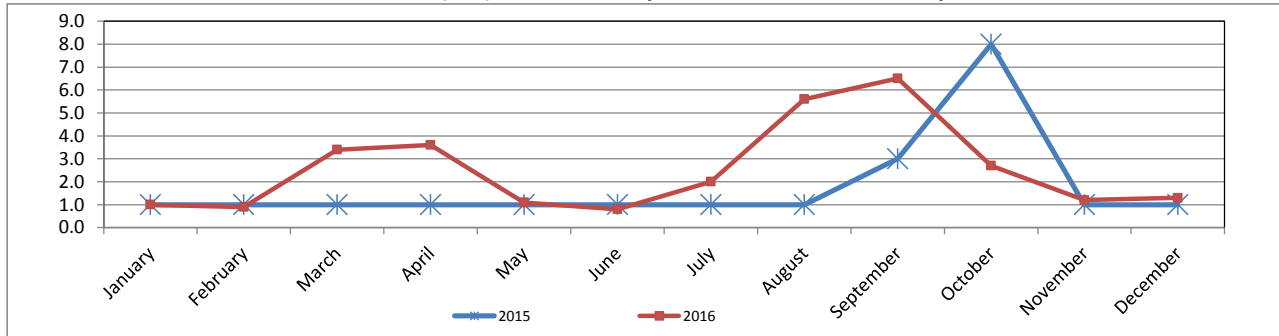
TOTAL REDUCED SULPHUR (TRS) 2015 Monthly Mean vs. 2016 Monthly Mean in PPB



TOTAL REDUCED SULPHUR (TRS) 2015 Monthly Minimum vs. 2016 Monthly Minimum in PPB



TOTAL REDUCED SULPHUR (TRS) 2015 Monthly Maximum vs. 2016 Monthly Maximum in PPB



Wind: THREE CREEKS #986 TRAILER Poll.: THREE CREEKS #986 TRAILER-TRS[ppb] Periodically: 2016/01/01 00:00-2016/12/31 23:00 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 h
 Calm: 13.51% Valid Data: 93.55% Calm Avg: 0.52 [ppb]

Direction	0-1	1-3	3-10	>10.0	Total
N	9.04	0.02	0	0	9.06
NE	5.81	0	0	0	5.81
E	8.26	0.07	0.01	0	8.34
SE	14.48	0.9	0.02	0	15.4
S	11.79	0.18	0.01	0	11.98
SW	14.35	0	0	0	14.35
W	9.68	0	0	0	9.68
NW	11.79	0.06	0	0	11.85
Summary	85.2	1.23	0.04	0	86.47

% Icon Classes (ppb)

85

0-1

1

1-3

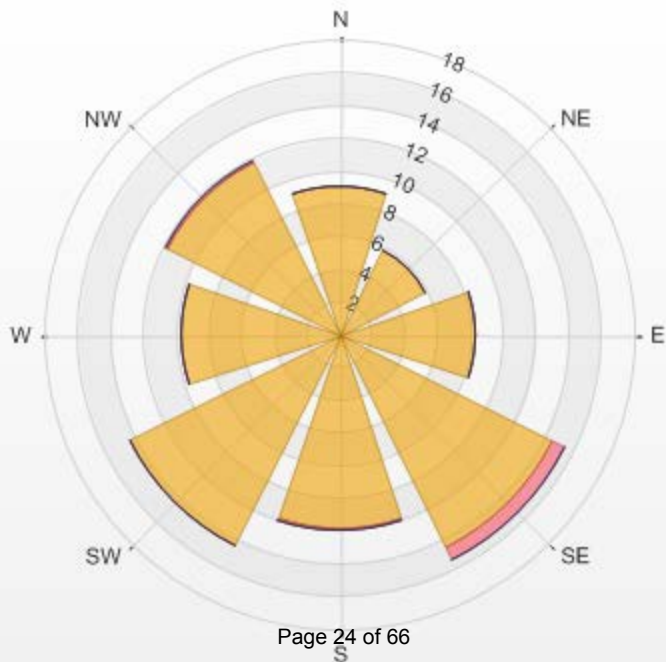
0

3-10

0

>10.0

THREE CREEKS #986 TRAILER Poll.: THREE CREEKS #986 TRAILER-TRS[ppb] 2016/01/01 00:00 - 2016/12/31 23:00 Calm: 13.51% Calm Poll Avg: 0.52[ppb]



TOTAL HYDROCARBON



TOTAL HYDROCARBONS (THC) 2016 Monthly Averages and Frequency Distributions of One Hour Readings

Month	Number of Readings*	Operational Time (%)	% Readings in Concentration Range (PPM THC)				OBJECTIVES**		EXCEEDENCES		MONTHLY AVERAGE
			≤ 3.0 ppm	3.1 < C ≤ 10.0 ppm	10.1 < C ≤ 50.0 ppm	> 50.0 ppm	1-HR	24-HR	1-HR	24-HR	
January	704	99.3	99.43%	0.57%	0.00%	0.00%	-	-	-	-	2.00
February	657	100.0	100.00%	0.00%	0.00%	0.00%	-	-	-	-	1.90
March	704	99.9	100.00%	0.00%	0.00%	0.00%	-	-	-	-	1.92
April	685	100.0	100.00%	0.00%	0.00%	0.00%	-	-	-	-	1.92
May	660	94.1	100.00%	0.00%	0.00%	0.00%	-	-	-	-	1.95
June	684	100.0	100.00%	0.00%	0.00%	0.00%	-	-	-	-	1.93
July	406	57.8	100.00%	0.00%	0.00%	0.00%	-	-	-	-	1.92
August	616	87.2	100.00%	0.00%	0.00%	0.00%	-	-	-	-	1.95
September	670	97.9	100.00%	0.00%	0.00%	0.00%	-	-	-	-	1.95
October	703	99.3	100.00%	0.00%	0.00%	0.00%	-	-	-	-	2.00
November	648	95.0	100.00%	0.00%	0.00%	0.00%	-	-	-	-	1.99
December	706	100.0	100.00%	0.00%	0.00%	0.00%	-	-	-	-	1.98
ANNUAL AVERAGE										1.95	

N/D - Valid Data Not Available

*Number of Readings - included calibration hours

**If Alberta Ambient Air Quality Objectives are not available, N/D is used.

Alberta Ambient Air Quality Objectives Annual Average**	N/D	PPM
Annual Average for 2016	1.95	PPM



THREE CREEKS
 986b Station - 2016
 JOB # 8449-2016-67- A

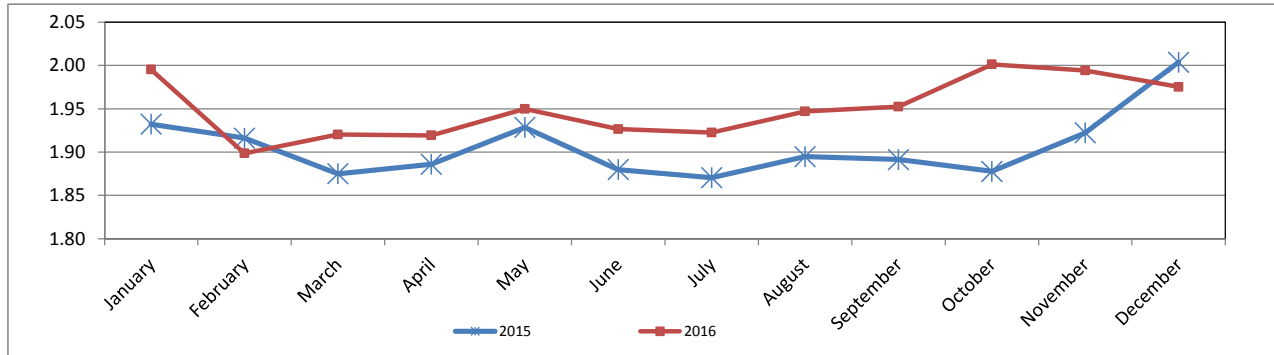
TOTAL HYDROCARBONS (THC) 2015 One-Hour Readings vs. 2016 One-Hour Readings in PPM

Month	2015			2016			Difference
	MEAN	MINIMUM	MAXIMUM	MEAN	MINIMUM	MAXIMUM	
January	1.93	1.80	2.40	2.00	1.82	3.18	-0.06
February	1.92	1.80	2.30	1.90	1.82	2.06	0.02
March	1.88	1.80	2.27	1.92	1.87	2.26	-0.05
April	1.89	1.82	2.21	1.92	1.83	2.37	-0.03
May	1.93	1.51	2.47	1.95	1.82	2.28	-0.02
June	1.88	1.77	2.28	1.93	1.84	2.24	-0.05
July	1.87	1.80	2.28	1.92	1.84	2.40	-0.05
August	1.89	1.83	2.16	1.95	1.85	2.21	-0.05
September	1.89	1.80	2.86	1.95	1.85	2.25	-0.06
October	1.88	1.79	2.24	2.00	1.92	2.17	-0.12
November	1.92	1.83	2.13	1.99	1.89	2.38	-0.07
December	2.00	1.90	3.28	1.98	1.86	2.28	0.03

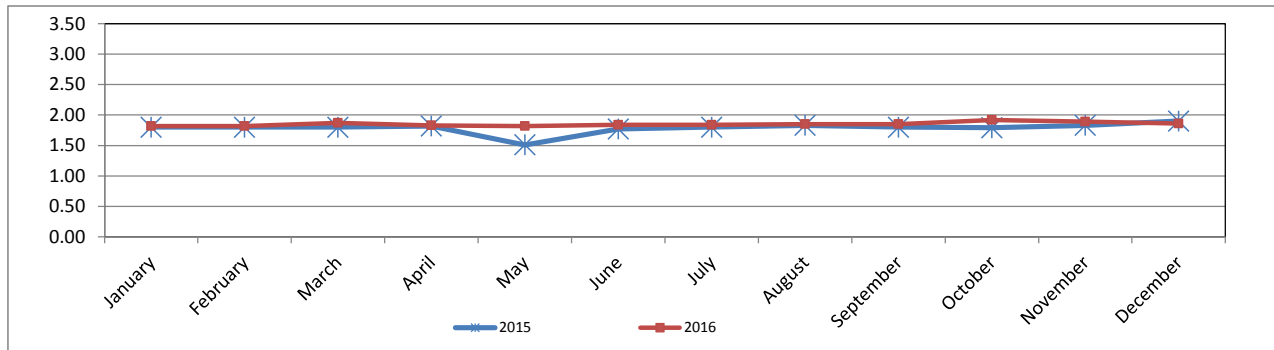
N/D - Valid Data Not Available

*Annual peak is bolded and highlighted.

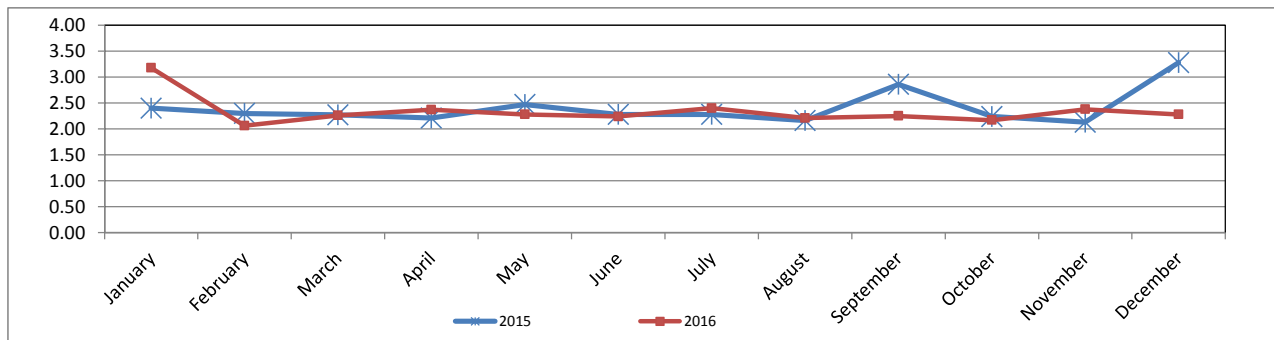
TOTAL HYDROCARBONS (THC) 2015 Monthly Mean vs. 2016 Monthly Mean in PPM



TOTAL HYDROCARBONS (THC) 2015 Monthly Minimum vs. 2016 Monthly Minimum in PPM



TOTAL HYDROCARBONS (THC) 2015 Monthly Maximum vs. 2016 Monthly Maximum in PPM

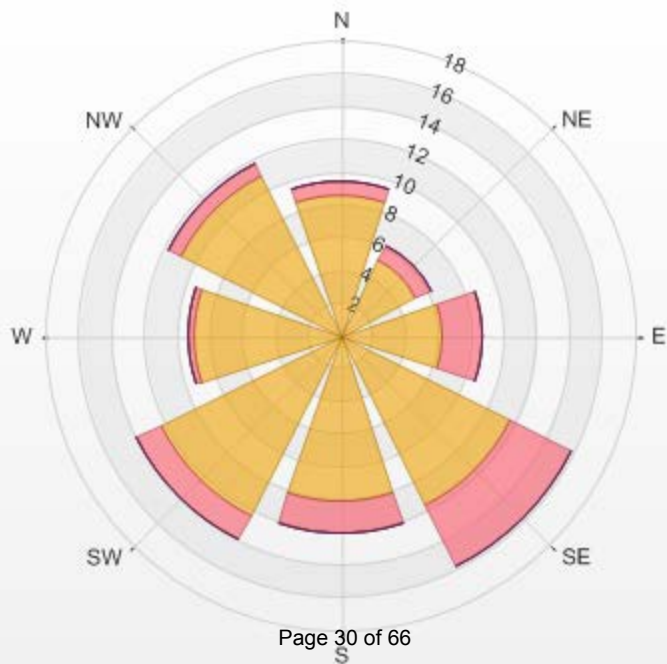


Wind: THREE CREEKS #986 TRAILER Poll.: THREE CREEKS #986 TRAILER-THC55[ppm] Periodically: 2016/01/01 00:00-2016/12/31 23:00 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 12.91% Valid Data: 89.19% Calm Avg: 1.99 [ppb]

Direction	0-2	2-3	3-5	5-10	>10.0	Total
N	8.55	0.9	0	0	0	9.45
NE	5.15	1.02	0	0	0	6.17
E	6.18	2.46	0.01	0	0	8.65
SE	11.6	4.1	0.01	0	0	15.71
S	10.14	1.89	0	0	0	12.03
SW	12.27	1.69	0	0	0	13.96
W	8.97	0.32	0	0	0	9.29
NW	10.93	0.9	0	0	0	11.83
Summary	73.79	13.28	0.02	0	0	87.09

% Icon	Classes (ppm)	74	 0-2	13	 2-3	0	 3-5	0	 5-10	0	 >10.0
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THREE CREEKS #986 TRAILER Poll.: THREE CREEKS #986 TRAILER-THC55[ppm] 2016/01/01 00:00 - 2016/12/31 23:00 Calm: 12.91% Calm Poll Avg: 1.99[ppm]



METHANE



METHANE (CH4) 2016 Monthly Averages and Frequency Distributions of One Hour Readings

Month	Number of Readings*	Operational Time (%)	% Readings in Concentration Range (PPM CH4)				OBJECTIVES**		EXCEEDENCES		MONTHLY AVERAGE
			≤ 3.0 ppm	3.1 < C ≤ 10.0 ppm	10.1 < C ≤ 50.0 ppm	> 50.0 ppm	1-HR	24-HR	1-HR	24-HR	
January	704	99.3	99.86%	0.14%	0.00%	0.00%	-	-	-	-	2.00
February	657	100.0	100.00%	0.00%	0.00%	0.00%	-	-	-	-	1.91
March	704	99.9	100.00%	0.00%	0.00%	0.00%	-	-	-	-	1.92
April	685	100.0	100.00%	0.00%	0.00%	0.00%	-	-	-	-	1.92
May	660	94.1	100.00%	0.00%	0.00%	0.00%	-	-	-	-	1.95
June	684	100.0	100.00%	0.00%	0.00%	0.00%	-	-	-	-	1.92
July	406	57.8	100.00%	0.00%	0.00%	0.00%	-	-	-	-	1.92
August	616	87.2	100.00%	0.00%	0.00%	0.00%	-	-	-	-	1.95
September	670	97.9	100.00%	0.00%	0.00%	0.00%	-	-	-	-	1.95
October	703	99.3	100.00%	0.00%	0.00%	0.00%	-	-	-	-	2.00
November	648	95.0	100.00%	0.00%	0.00%	0.00%	-	-	-	-	1.99
December	706	100.0	100.00%	0.00%	0.00%	0.00%	-	-	-	-	1.98
ANNUAL AVERAGE										1.95	

N/D - Valid Data Not Available

*Number of Readings - included calibration hours

**If Alberta Ambient Air Quality Objectives are not available, N/D is used.

Alberta Ambient Air Quality Objectives Annual Average**	N/D	PPM
Annual Average for 2016	1.95	PPM



THREE CREEKS
 986b Station - 2016
 JOB # 8449-2016-67- A

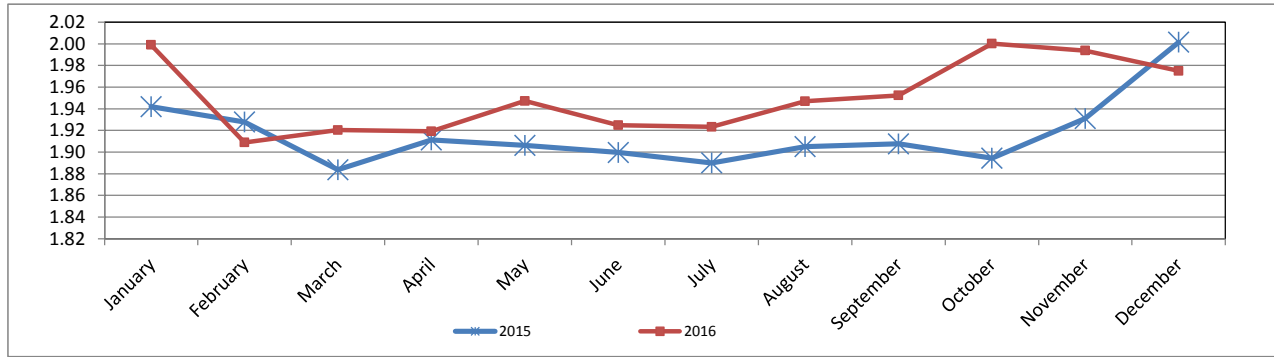
METHANE (CH4) 2015 One-Hour Readings vs. 2016 One-Hour Readings in PPM

Month	2015			2016			Difference
	MEAN	MINIMUM	MAXIMUM	MEAN	MINIMUM	MAXIMUM	
January	1.94	1.80	2.30	2.00	1.83	3.03	-0.06
February	1.93	1.80	2.40	1.91	1.83	2.07	0.02
March	1.88	1.81	2.28	1.92	1.87	2.26	-0.04
April	1.91	1.84	2.25	1.92	1.83	2.37	-0.01
May	1.91	1.51	2.33	1.95	1.82	2.14	-0.04
June	1.90	1.79	2.31	1.92	1.84	2.24	-0.03
July	1.89	1.83	2.31	1.92	1.84	2.40	-0.03
August	1.91	1.84	2.18	1.95	1.85	2.21	-0.04
September	1.91	1.82	2.23	1.95	1.85	2.25	-0.04
October	1.89	1.81	2.26	2.00	1.92	2.15	-0.11
November	1.93	1.83	2.08	1.99	1.89	2.38	-0.06
December	2.00	1.91	2.43	1.98	1.85	2.28	0.03

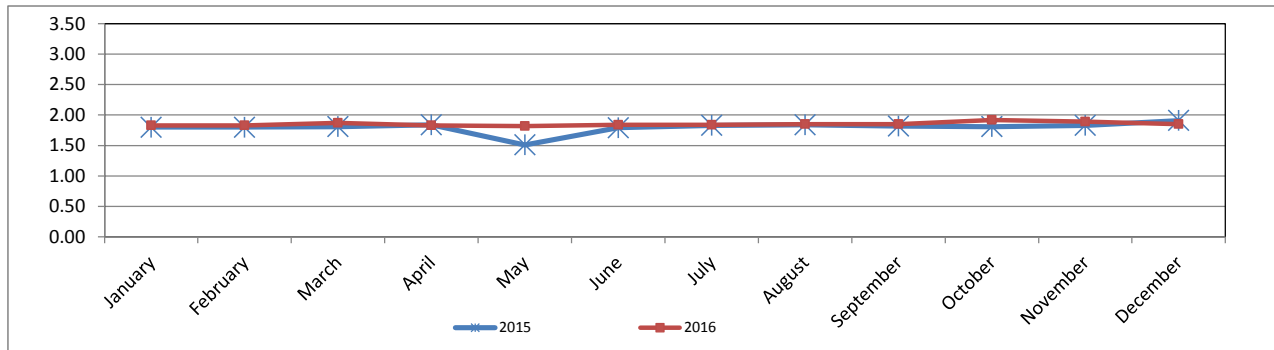
N/D - Valid Data Not Available

*Annual peak is bolded and highlighted.

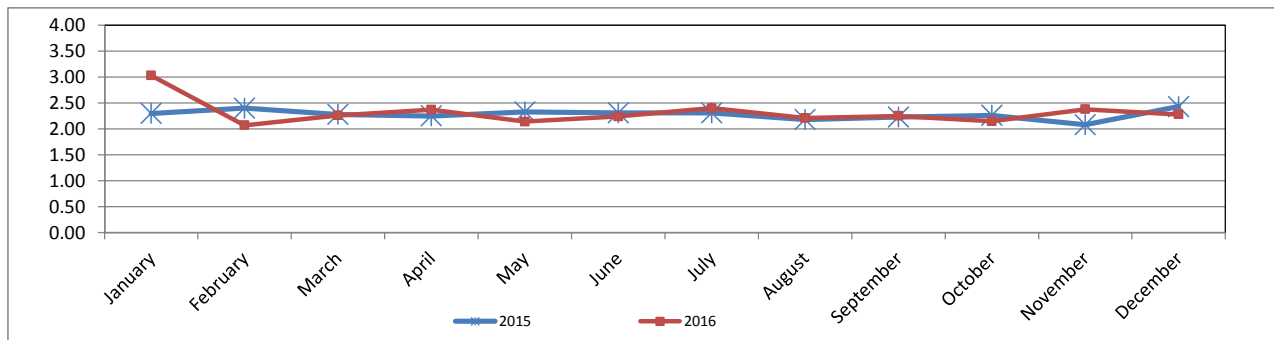
METHANE (CH4) 2015 Monthly Mean vs. 2016 Monthly Mean in PPM



METHANE (CH4) 2015 Monthly Minimum vs. 2016 Monthly Minimum in PPM



METHANE (CH4) 2015 Monthly Maximum vs. 2016 Monthly Maximum in PPM

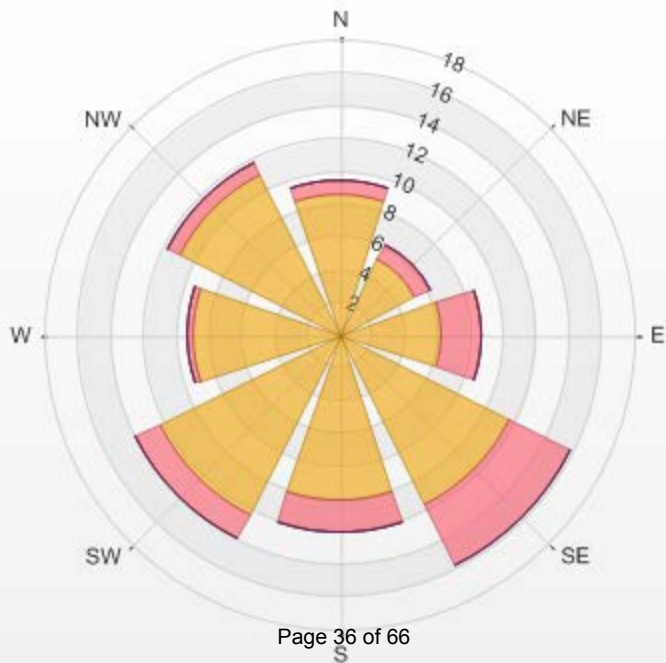


Wind: THREE CREEKS #986 TRAILER Poll.: THREE CREEKS #986 TRAILER-CH4[ppm] Periodically: 2016/01/01 00:00-2016/12/31 23:00 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.
 Calm: 12.91% Valid Data: 89.21% Calm Avg: 1.99 [ppm]

Direction	0-2	2-3	3-5	5-10	>10.0	Total
N	8.56	0.88	0	0	0	9.44
NE	5.17	1	0	0	0	6.17
E	6.23	2.42	0	0	0	8.65
SE	11.54	4.17	0.01	0	0	15.72
S	10.15	1.88	0	0	0	12.03
SW	12.27	1.69	0	0	0	13.96
W	8.97	0.32	0	0	0	9.29
NW	10.9	0.92	0	0	0	11.82
Summary	73.79	13.28	0.01	0	0	87.08

% Icon Classes (ppm) 74 0-2 13 2-3 0 3-5 0 5-10 0 >10.0

THREE CREEKS #986 TRAILER Poll.: THREE CREEKS #986 TRAILER-CH4[ppm] 2016/01/01 00:00 - 2016/12/31 23:00 Calm: 12.91% Calm Poll Avg: 1.99[ppm]



NON-METHANE HYDROCARBON



THREE CREEKS
986b Station - 2016
JOB # 8449-2016-67- A

NON-METHANE HYDROCARBONS (NMHC) 2016 Monthly Averages and Frequency Distributions of One Hour Readings

Month	Number of Readings*	Operational Time (%)	% Readings in Concentration Range (PPM NMHC)						OBJECTIVES**		EXCEEDENCES		MONTHLY AVERAGE
			≤ 0.20 ppm	0.21 < C ≤ 0.50 ppm	0.51 < C ≤ 1.00 ppm	1.01 < C ≤ 2.00 ppm	2.01 < C ≤ 4.00 ppm	> 4.00 ppm	1-HR	24-HR	1-HR	24-HR	
January	704	99.3	99.86%	0.14%	0.00%	0.00%	0.00%	0.00%	-	-	-	-	0.01
February	657	100.0	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	-	-	-	-	0.00
March	704	99.9	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	-	-	-	-	0.00
April	685	100.0	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	-	-	-	-	0.00
May	660	94.1	99.55%	0.45%	0.00%	0.00%	0.00%	0.00%	-	-	-	-	0.00
June	684	100.0	99.85%	0.15%	0.00%	0.00%	0.00%	0.00%	-	-	-	-	0.00
July	406	57.8	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	-	-	-	-	0.00
August	616	87.2	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	-	-	-	-	0.00
September	670	97.9	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	-	-	-	-	0.00
October	703	99.3	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	-	-	-	-	0.00
November	648	95.0	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	-	-	-	-	0.00
December	706	100.0	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	-	-	-	-	0.00
											ANNUAL AVERAGE		0.00

N/D - Valid Data Not Available

*Number of Readings - included calibration hours

**If Alberta Ambient Air Quality Objectives are not available, N/D is used.

Alberta Ambient Air Quality Objectives Annual Average**	N/D	PPM
Annual Average for 2016	0.00	PPM



THREE CREEKS
 986b Station - 2016
 JOB # 8449-2016-67- A

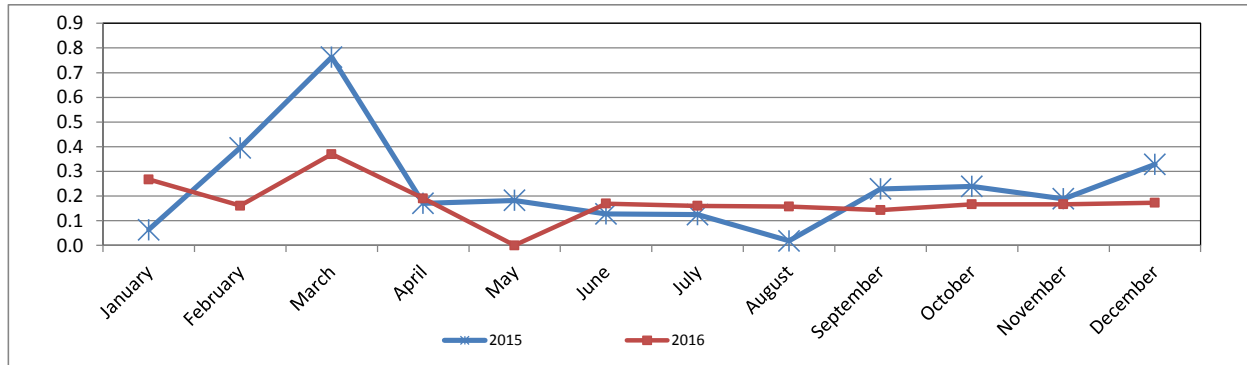
NON-METHANE HYDROCARBONS (NMHC) 2015 One-Hour Readings vs. 2016 One-Hour Readings in PPM

Month	2015			2016			Difference
	MEAN	MINIMUM	MAXIMUM	MEAN	MINIMUM	MAXIMUM	
January	0.00	0.00	0.24	0.01	0.00	0.26	0.00
February	0.00	0.00	0.00	0.00	0.00	0.00	0.00
March	0.00	0.00	0.03	0.00	0.00	0.04	0.00
April	0.00	0.00	0.05	0.00	0.00	0.01	0.00
May	0.02	0.00	0.23	0.00	0.00	0.30	0.02
June	0.00	0.00	0.13	0.00	0.00	0.32	0.00
July	0.00	0.00	0.15	0.00	0.00	0.04	0.00
August	0.00	0.00	0.08	0.00	0.00	0.02	0.00
September	0.00	0.00	0.98	0.00	0.00	0.02	0.00
October	0.00	0.00	0.15	0.00	0.00	0.15	0.00
November	0.00	0.00	0.13	0.00	0.00	0.13	0.00
December	0.01	0.00	1.16	0.00	0.00	0.00	0.01

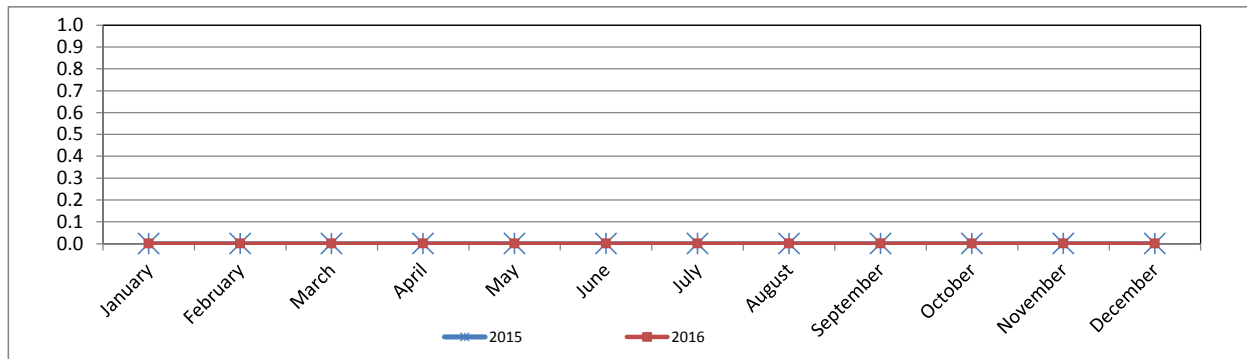
N/D - Valid Data Not Available

*Annual peak is bolded and highlighted.

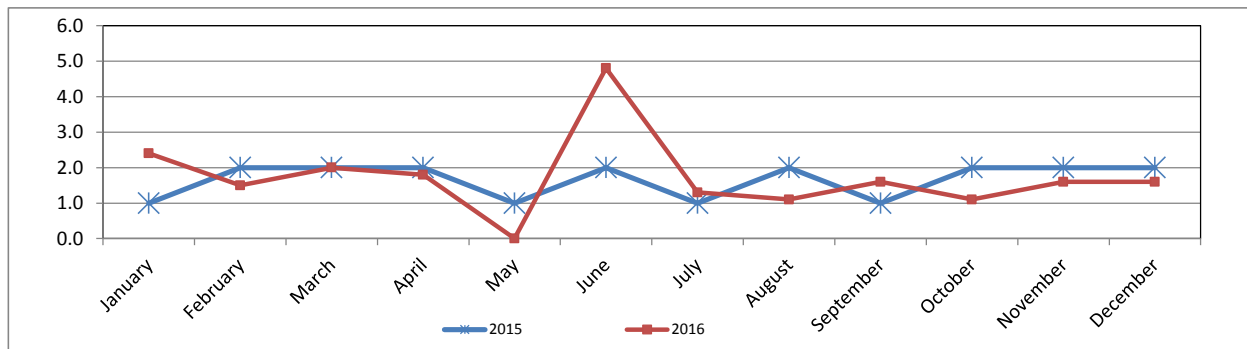
NON-METHANE HYDROCARBONS (NMHC) 2015 Monthly Mean vs. 2016 Monthly Mean in PPM



NON-METHANE HYDROCARBONS (NMHC) 2015 Monthly Minimum vs. 2016 Monthly Minimum in PPM



NON-METHANE HYDROCARBONS (NMHC) 2015 Monthly Maximum vs. 2016 Monthly Maximum in PPM



Wind: THREE CREEKS #986 TRAILER Poll.: THREE CREEKS #986 TRAILER-NMHC[ppm] Periodically: 2016/01/01 00:00-2016/12/31 23:00 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr
 Calm: 12.91% Valid Data: 89.19% Calm Avg: 0.01 [ppm]

Direction	0-0.1	0.1-0.3	0.3-1	1-2	>2.0	Total
N	9.42	0.03	0	0	0	9.45
NE	6.16	0.01	0	0	0	6.17
E	8.54	0.06	0.03	0	0	8.63
SE	15.67	0.05	0.01	0	0	15.73
S	11.98	0.04	0.01	0	0	12.03
SW	13.86	0.08	0.03	0	0	13.97
W	9.29	0	0	0	0	9.29
NW	11.83	0	0	0	0	11.83
Summary	86.75	0.27	0.08	0	0	87.1

% Icon Classes (ppm)

87

0-0.1

0

0.1-0.3

0

0.3-1

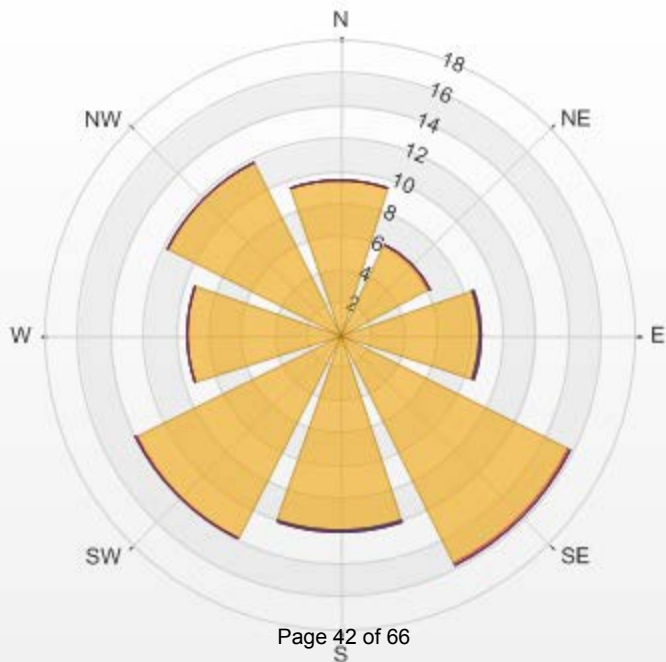
0

1-2

0

>2.0

THREE CREEKS #986 TRAILER Poll.: THREE CREEKS #986 TRAILER-NMHC[ppm] 2016/01/01 00:00 - 2016/12/31 23:00 Calm: 12.91% Calm Poll Avg: 0.01[ppm]



WIND SPEED

WIND SPEED (WS) 2016 Monthly Data Summary of One Hour Readings

Month	Number of Readings*	Operational Time (%)	Monthly Average (KPH)	Minimum Hourly Average (KPH)	Maximum Hourly Average (KPH)	Maximum Daily Average (KPH)
January	744	100.0	1.0	0.0	17.0	8.3
February	696	100.0	1.1	0.0	29.0	11.0
March	743	99.9	0.6	0.1	12.9	7.0
April	719	99.9	1.5	0.3	30.7	14.2
May	692	93.0	2.3	0.0	24.9	11.3
June	720	100.0	1.7	0.2	19.2	9.2
July	744	100.0	1.5	0.0	16.4	6.0
August	744	100.0	0.8	0.2	15.4	7.8
September	720	100.0	2.8	0.3	23.5	11.2
October	740	99.5	1.5	0.2	13.2	8.3
November	720	100.0	2.2	0.1	15.7	7.8
December	744	100.0	3.0	0.0	27.1	14.1

N/D - Valid Data Not Available

*Annual peak is bolded and highlighted.



THREE CREEKS
 986b Station - 2016
 JOB # 8449-2016-67- A

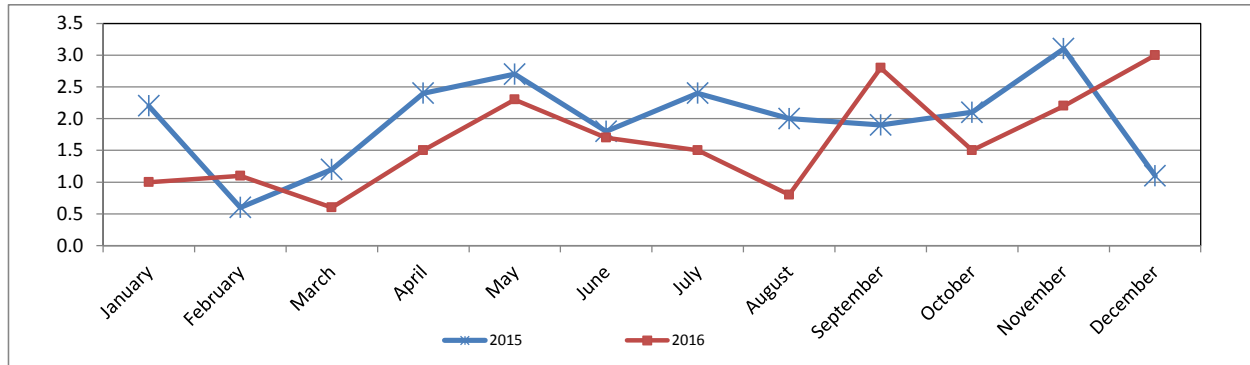
WIND SPEED (WS) 2015 One-Hour Readings vs. 2016 One-Hour Readings in km/hr

Month	2015			2016			Difference
	MEAN	MINIMUM	MAXIMUM	MEAN	MINIMUM	MAXIMUM	
January	2.2	0.1	17.5	1.0	0.0	17.0	1.2
February	0.6	0.1	16.1	1.1	0.0	29.0	-0.5
March	1.2	0.2	31.0	0.6	0.1	12.9	0.6
April	2.4	0.2	26.7	1.5	0.3	30.7	0.9
May	2.7	0.1	24.2	2.3	0.0	24.9	0.4
June	1.8	0.2	16.3	1.7	0.2	19.2	0.1
July	2.4	0.0	18.2	1.5	0.0	16.4	0.9
August	2.0	0.0	21.2	0.8	0.2	15.4	1.2
September	1.9	0.1	22.3	2.8	0.3	23.5	-0.9
October	2.1	0.1	23.2	1.5	0.2	13.2	0.6
November	3.1	0.0	22.0	2.2	0.1	15.7	0.9
December	1.1	0.0	14.8	3.0	0.0	27.1	-1.9

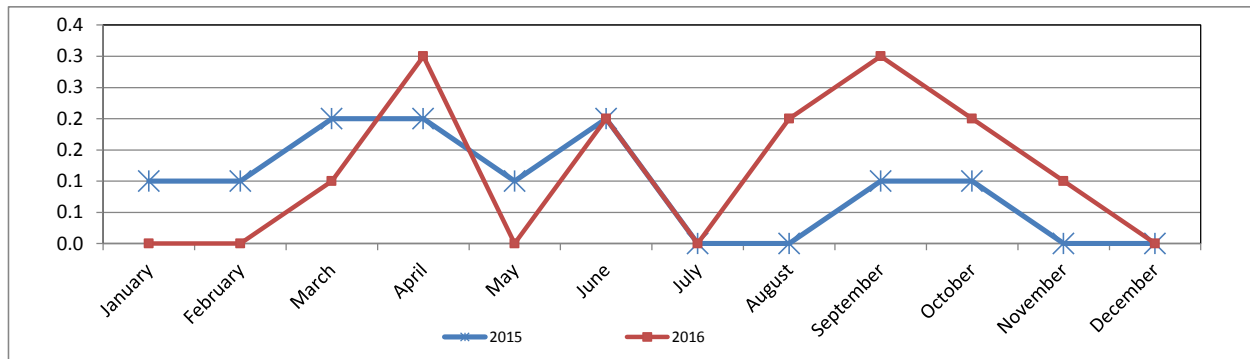
N/D - Valid Data Not Available

*Annual peak is bolded and highlighted.

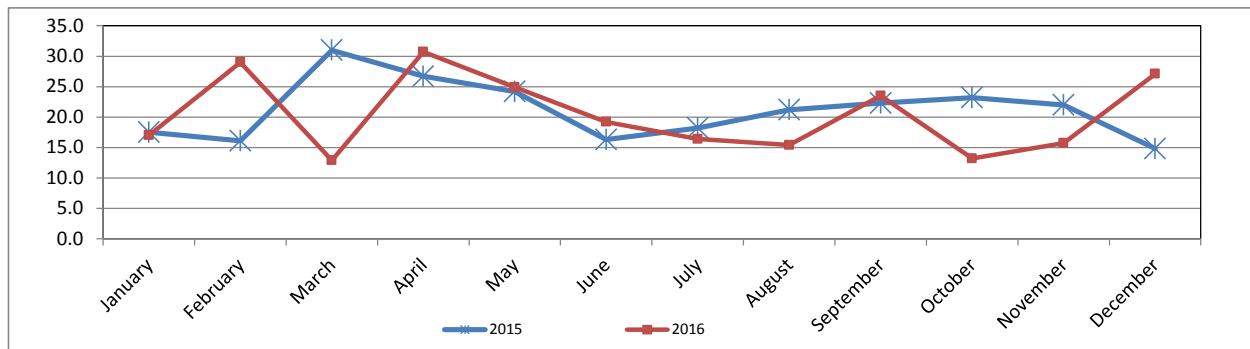
WIND SPEED (WS) 2015 Monthly Mean vs. 2016 Monthly Mean in km/hr



WIND SPEED (WS) 2015 Monthly Minimum vs. 2016 Monthly Minimum in km/hr



WIND SPEED (WS) 2015 Monthly Maximum vs. 2016 Monthly Maximum in km/hr

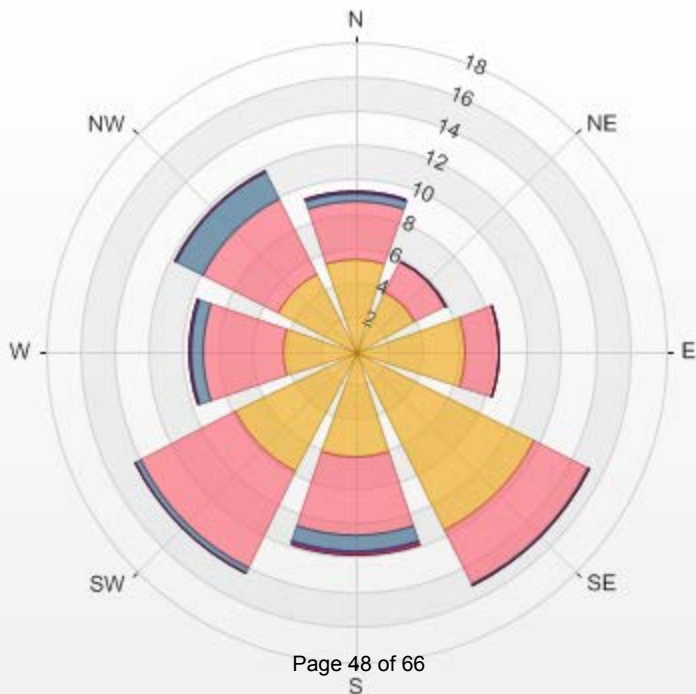


Wind: THREE CREEKS #986 TRAILER Monitor: WSP [kph] Periodically: 2016/01/01 00:00-2016/12/31 23:00 Type: WindRose Direction: Blowing From (Wind Frequency) Based On 1 H
 Calm: 13.53% Valid Data: 99.61%

Direction	1.8-6.0	6.0-12.0	12.0-20.0	20.0-29.0	29.0-39.0	>39.0	Total
N	5.36	3.45	0.47	0.02	0	0	9.3
NE	3.88	1.98	0.05	0	0	0	5.91
E	6.34	2.04	0	0	0	0	8.38
SE	11.67	3.42	0.18	0	0	0	15.27
S	6.2	4.53	0.94	0.09	0.03	0	11.79
SW	7.82	6.23	0.31	0	0	0	14.36
W	4.25	4.66	0.72	0.01	0	0	9.64
NW	5.01	4.87	1.75	0.16	0.01	0	11.8
Summary	50.53	31.18	4.42	0.28	0.04	0	86.45

% Icon	Classes (kph)	51		1.8-6.0	31		6.0-12.0	4		12.0-20.0	0		20.0-29.0	0		29.0-39.0	0		>39.0
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THREE CREEKS #986 TRAILER 2016/01/01 00:00 - 2016/12/31 23:00 Calm: 13.53% Calm Wind Avg Speed: 1.08(kph)



RELATIVE HUMIDITY

RELATIVE HUMIDITY (RH) 2016 Monthly Data Summary of One Hour Readings

Month	Number of Readings*	Operational Time (%)	Monthly Average (%)	Minimum Hourly Average (%)	Maximum Daily Average (%)	Maximum Daily Average (%)
January	744	100.0	78	43	93	86
February	696	100.0	76	39	96	90
March	743	99.9	73	30	95	86
April	718	99.7	54	12	96	91
May	714	96.0	57	13	99	99
June	720	100.0	68	20	98	96
July	744	100.0	74	32	99	90
August	744	100.0	81	38	99	97
September	720	100.0	75	30	99	97
October	740	99.5	87	48	98	97
November	720	100.0	80	39	99	90
December	744	100.0	72	47	93	86

N/D - Valid Data Not Available

*Annual peak is bolded and highlighted.



THREE CREEKS
 986b Station - 2016
 JOB # 8449-2016-67- A

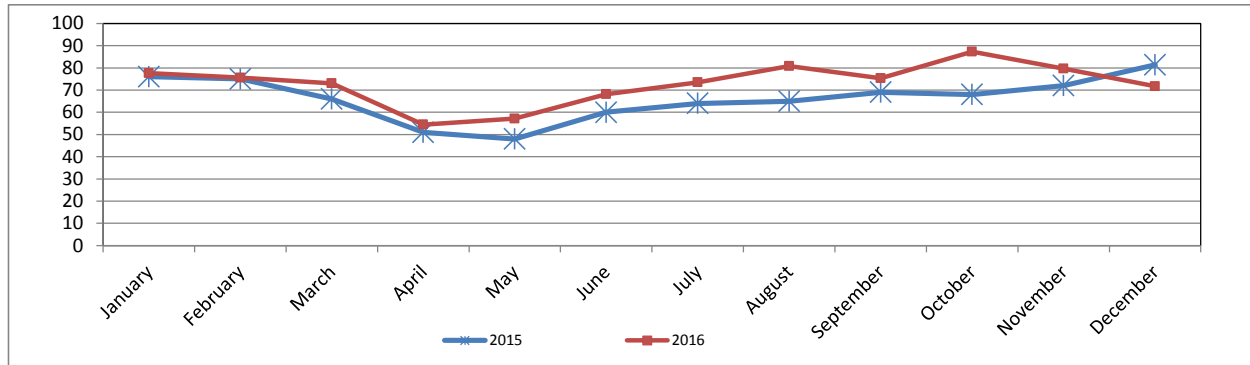
RELATIVE HUMIDITY (RH) 2015 One-Hour Readings vs. 2016 One-Hour Readings in %

Month	2015			2016			Difference
	MEAN	MINIMUM	MAXIMUM	MEAN	MINIMUM	MAXIMUM	
January	76	47	95	78	43	93	-2
February	75	42	93	76	39	96	-1
March	66	20	96	73	30	95	-7
April	51	11	96	54	12	96	-3
May	48	14	96	57	13	99	-9
June	60	24	96	68	20	98	-8
July	64	24	97	74	32	99	-10
August	65	18	99	81	38	99	-16
September	69	24	97	75	30	99	-6
October	68	26	96	87	48	98	-19
November	72	26	97	80	39	99	-8
December	81	41	95	72	47	93	10

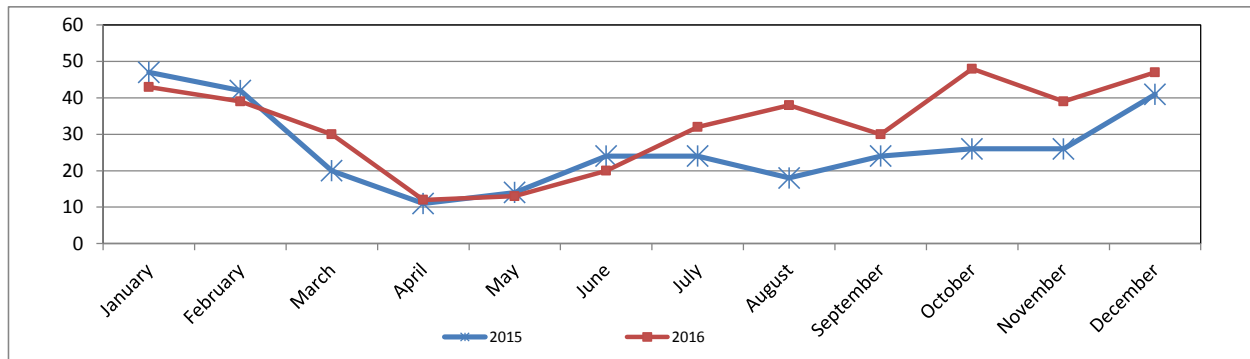
N/D - Valid Data Not Available

*Annual peak is bolded and highlighted.

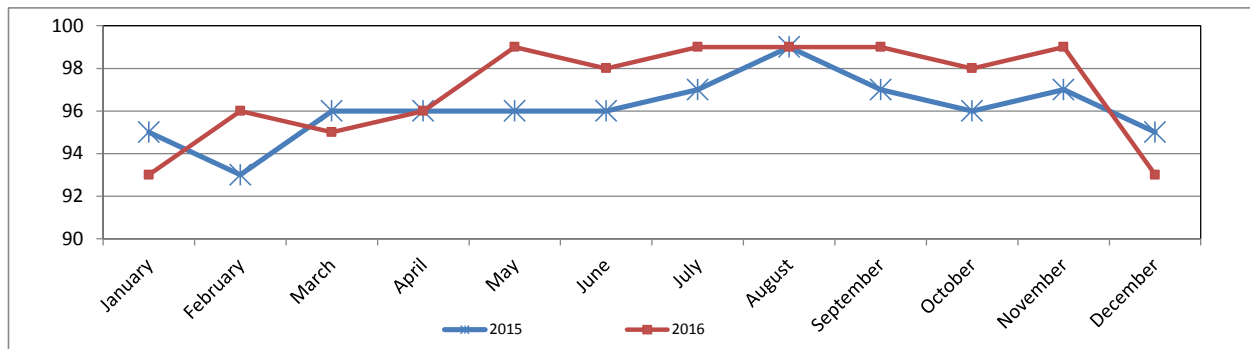
RELATIVE HUMIDITY (RH) 2015 Monthly Mean vs. 2016 Monthly Mean in %



RELATIVE HUMIDITY (RH) 2015 Monthly Minimum vs. 2016 Monthly Minimum in %



RELATIVE HUMIDITY (RH) 2015 Monthly Maximum vs. 2016 Monthly Maximum in %



BAROMETRIC PRESSURE

BAROMETRIC PRESSURE (BP) 2016 Monthly Data Summary of One Hour Readings

Month	Number of Readings*	Operational Time (%)	Monthly Average (inHg)	Minimum Hourly Average (Deg C)	Maximum Daily Average (inHg)	Maximum Daily Average (inHg)
January	744	100.0	27.74	27.11	28.09	28.06
February	696	100.0	27.75	27.06	28.21	28.09
March	743	99.9	27.69	27.16	28.22	28.19
April	719	99.9	27.82	27.30	28.17	28.10
May	714	96.0	27.84	27.31	28.31	28.26
June	720	100.0	27.76	27.13	28.10	28.05
July	744	100.0	27.80	27.58	28.12	28.09
August	744	100.0	27.87	27.43	28.20	28.15
September	720	100.0	27.80	27.32	28.15	28.10
October	740	99.5	27.81	27.23	28.17	28.14
November	720	100.0	27.68	27.28	28.27	28.21
December	744	100.0	27.82	27.06	28.68	28.60

N/D - Valid Data Not Available

*Annual peak is bolded and highlighted.



THREE CREEKS
 986b Station - 2016
 JOB # 8449-2016-67- A

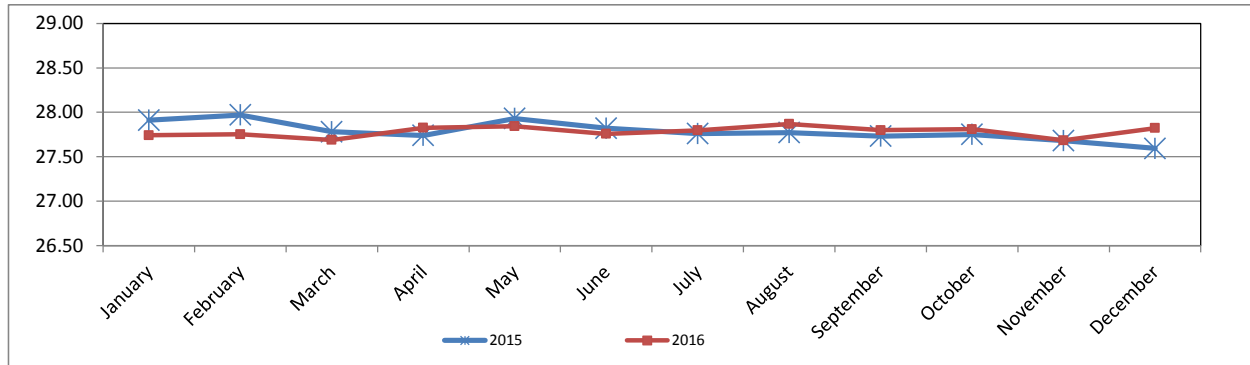
BAROMETRIC PRESSURE (BP) 2015 One-Hour Readings vs. 2016 One-Hour Readings in inHg

Month	2015			2016			Difference
	MEAN	MINIMUM	MAXIMUM	MEAN	MINIMUM	MAXIMUM	
January	27.91	27.19	28.67	27.74	27.11	28.09	0.17
February	27.97	27.31	28.42	27.75	27.06	28.21	0.22
March	27.78	27.02	28.26	27.69	27.16	28.22	0.09
April	27.74	27.16	28.14	27.82	27.30	28.17	-0.08
May	27.93	27.53	28.26	27.84	27.31	28.31	0.09
June	27.82	27.56	28.14	27.76	27.13	28.10	0.06
July	27.76	27.48	28.10	27.80	27.58	28.12	-0.04
August	27.77	27.27	28.09	27.87	27.43	28.20	-0.10
September	27.73	27.32	28.06	27.80	27.32	28.15	-0.07
October	27.75	27.11	28.35	27.81	27.23	28.17	-0.06
November	27.68	27.05	28.18	27.68	27.28	28.27	0.00
December	27.59	27.12	28.19	27.82	27.06	28.68	-0.23

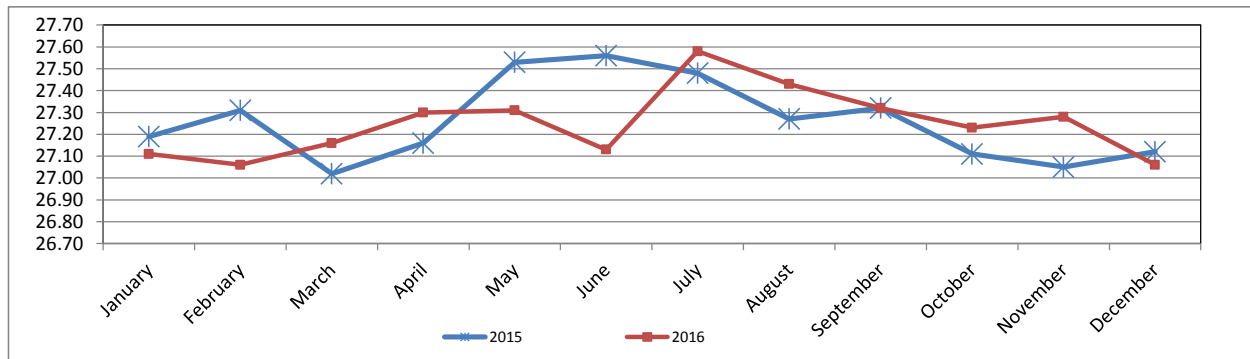
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*Annual peak is bolded and highlighted.

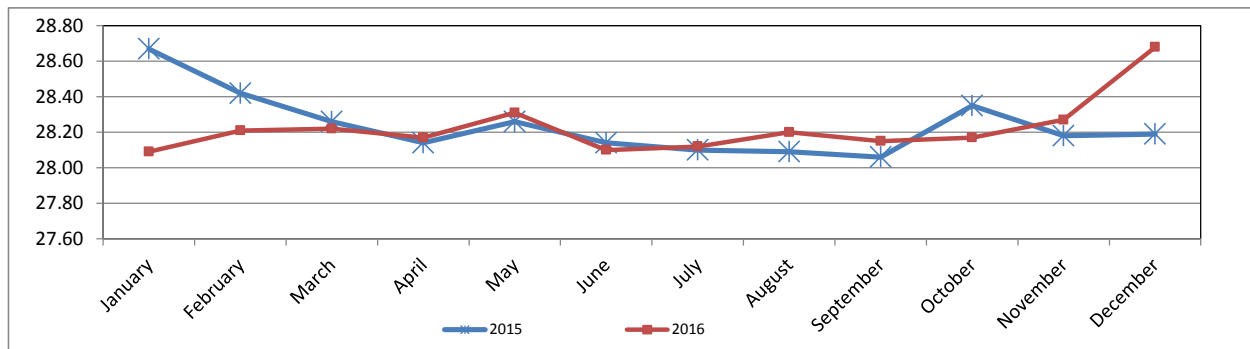
BAROMETRIC PRESSURE (BP) 2015 Monthly Mean vs. 2016 Monthly Mean in inHg



BAROMETRIC PRESSURE (BP) 2015 Monthly Minimum vs. 2016 Monthly Minimum in inHg



BAROMETRIC PRESSURE (BP) 2015 Monthly Maximum vs. 2016 Monthly Maximum in inHg



AMBIENT TEMPERATURE



THREE CREEKS
 986b Station - 2016
 JOB # 8449-2016-67- A

AMBIENT TEMPERATURE (TPX) 2016 Monthly Data Summary of One Hour Readings

Month	Number of Readings*	Operational Time (%)	Monthly Average (Deg C)	Minimum Hourly Average (Deg C)	Maximum Hourly Average (Deg C)	Maximum Daily Average (Deg C)
January	744	100.0	-11.4	-29.9	5.9	2.9
February	696	100.0	-5.1	-18.7	9.3	4.9
March	743	99.9	-1.7	-16.6	12.0	5.9
April	718	99.7	7.2	-5.2	28.2	18.6
May	714	96.0	11.2	-3.3	29.9	18.7
June	720	100.0	15.8	3.5	28.1	20.5
July	744	100.0	16.9	5.5	26.4	19.5
August	744	100.0	15.1	2.6	26.3	19.1
September	720	100.0	9.5	-4.4	22.9	15.1
October	740	99.5	-0.4	-8.2	8.3	3.0
November	720	100.0	-2.0	-18.2	16.5	8.7
December	744	100.0	-14.4	-35.4	2.7	0.2

N/D - Valid Data Not Available

*Annual peak is bolded and highlighted.



THREE CREEKS
 986b Station - 2016
 JOB # 8449-2016-67- A

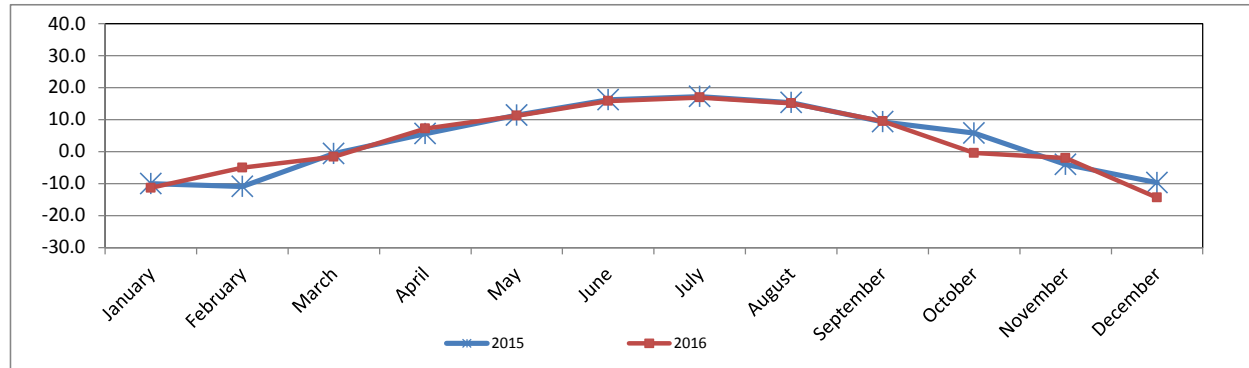
AMBIENT TEMPERATURE (TPX) 2015 One-Hour Readings vs. 2016 One-Hour Readings in Degrees Celsius

Month	2015			2016			Difference
	MEAN	MINIMUM	MAXIMUM	MEAN	MINIMUM	MAXIMUM	
January	-10.0	-33.3	9.2	-11.4	-29.9	5.9	1.4
February	-10.9	-26.5	8.7	-5.1	-18.7	9.3	-5.8
March	-0.6	-27.6	13.5	-1.7	-16.6	12.0	1.1
April	5.6	-6.8	23.5	7.2	-5.2	28.2	-1.6
May	11.4	-2.9	27.0	11.2	-3.3	29.9	0.2
June	16.2	0.3	31.8	15.8	3.5	28.1	0.4
July	17.2	1.0	30.0	16.9	5.5	26.4	0.3
August	15.3	-1.6	27.1	15.1	2.6	26.3	0.2
September	9.3	-5.5	24.9	9.5	-4.4	22.9	-0.2
October	5.8	-7.3	24.0	-0.4	-8.2	8.3	6.2
November	-4.0	-23.7	6.8	-2.0	-18.2	16.5	-2.0
December	-9.7	-26.1	6.1	-14.4	-35.4	2.7	4.7

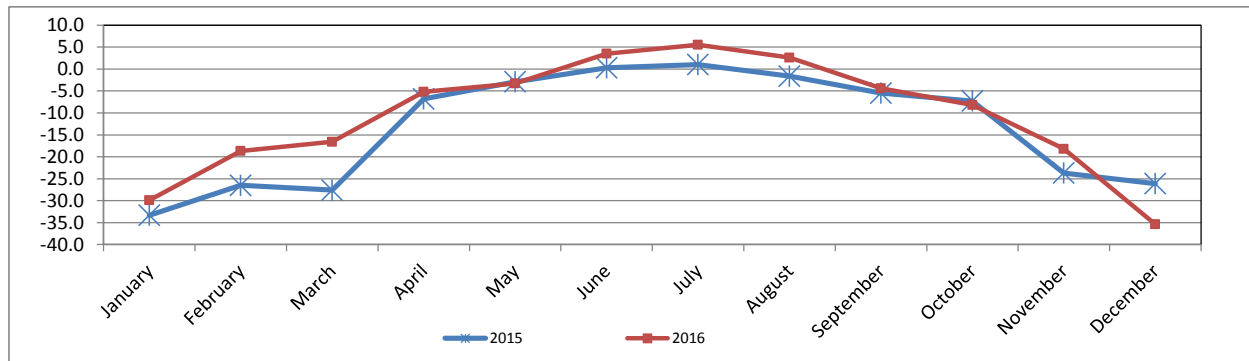
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*Annual peak is bolded and highlighted.

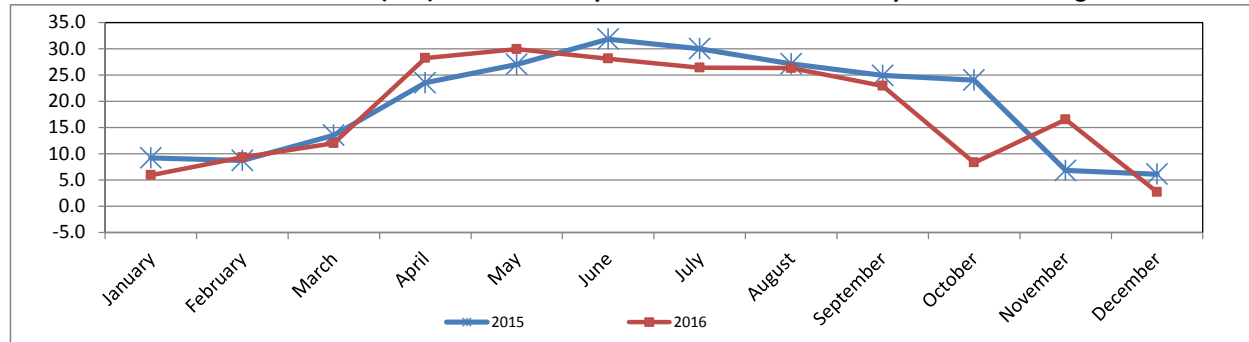
AMBIENT TEMPERATURE (TPX) 2015 Monthly Mean vs. 2016 Monthly Mean in Degrees Celsius



AMBIENT TEMPERATURE (TPX) 2015 Monthly Minimum vs. 2016 Monthly Minimum in Degrees Celsius



AMBIENT TEMPERATURE (TPX) 2015 Monthly Maximum vs. 2016 Monthly Maximum in Degrees Celsius



STATION TEMPERATURE



THREE CREEKS
 986b Station - 2016
 JOB # 8449-2016-67- A

STATION TEMPERATURE (STNTPX) 2016 Monthly Data Summary of One Hour Readings

Month	Number of Readings*	Operational Time (%)	Monthly Average (Deg C)	Minimum Hourly Average (Deg C)	Maximum Hourly Average (Deg C)	Maximum Daily Average (Deg C)
January	744	100.0	21.5	20.5	22.7	22.2
February	696	100.0	22.4	19.6	23.9	23.5
March	743	99.9	22.3	19.4	24.8	23.6
April	719	99.9	21.3	19.8	23.5	22.1
May	714	96.0	21.8	19.9	23.0	22.4
June	720	100.0	21.9	21.3	22.8	22.3
July	744	100.0	21.6	20.6	22.5	21.9
August	744	100.0	21.5	20.5	22.9	22.2
September	720	100.0	21.4	19.8	23.0	22.3
October	740	99.5	21.6	19.1	23.1	22.3
November	720	100.0	21.4	19.9	23.1	21.9
December	744	100.0	21.4	18.6	22.8	22.0

N/D - Valid Data Not Available

*Annual peak is bolded and highlighted.



THREE CREEKS
 986b Station - 2016
 JOB # 8449-2016-67- A

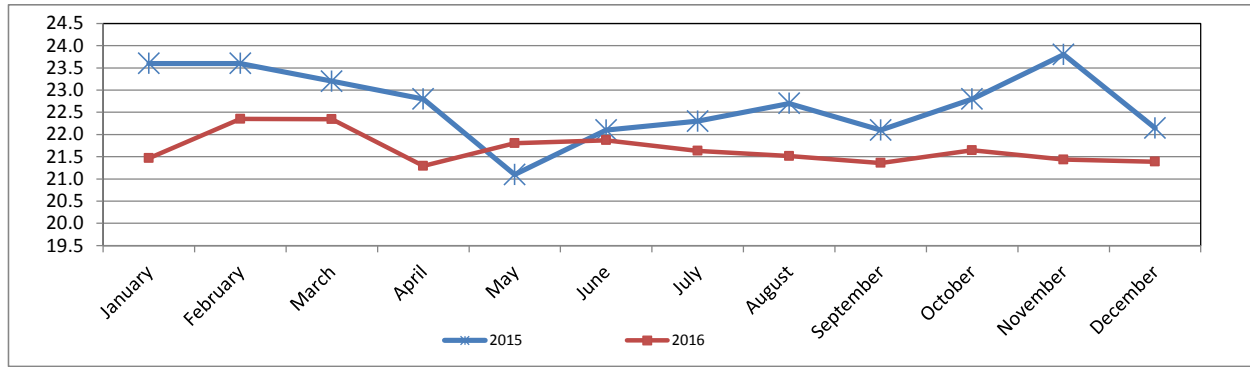
STATION TEMPERATURE (STNTPX) 2015 One-Hour Readings vs. 2016 One-Hour Readings in Degrees Celsius

Month	2015			2016			Difference
	MEAN	MINIMUM	MAXIMUM	MEAN	MINIMUM	MAXIMUM	
January	23.6	21.2	25.0	21.5	20.5	22.7	2.1
February	23.6	20.1	24.9	22.4	19.6	23.9	1.2
March	23.2	21.5	24.8	22.3	19.4	24.8	0.9
April	22.8	12.8	24.7	21.3	19.8	23.5	1.5
May	21.1	19.6	24.4	21.8	19.9	23.0	-0.7
June	22.1	21.7	22.9	21.9	21.3	22.8	0.2
July	22.3	21.7	23.8	21.6	20.6	22.5	0.7
August	22.7	21.1	24.3	21.5	20.5	22.9	1.2
September	22.1	20.9	25.1	21.4	19.8	23.0	0.7
October	22.8	21.0	25.3	21.6	19.1	23.1	1.2
November	23.8	21.4	25.2	21.4	19.9	23.1	2.4
December	22.1	20.3	24.9	21.4	18.6	22.8	0.8

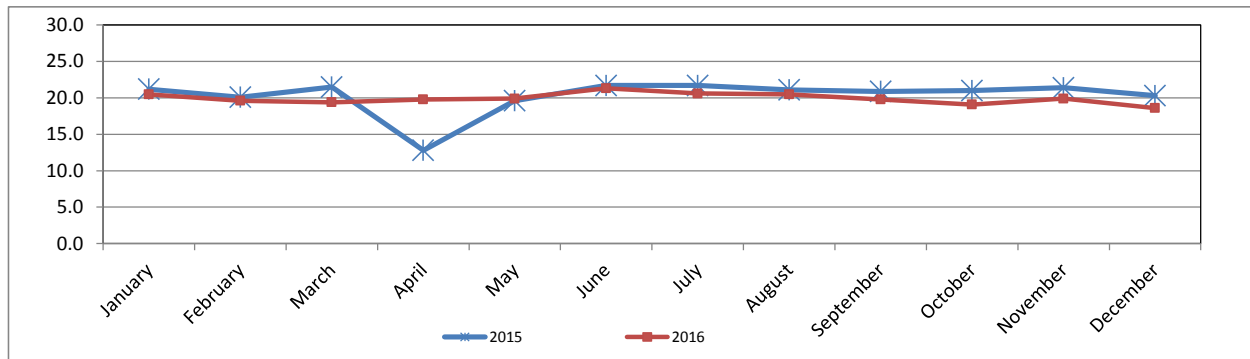
N/D - Valid Data Not Available

*Annual peak is bolded and highlighted.

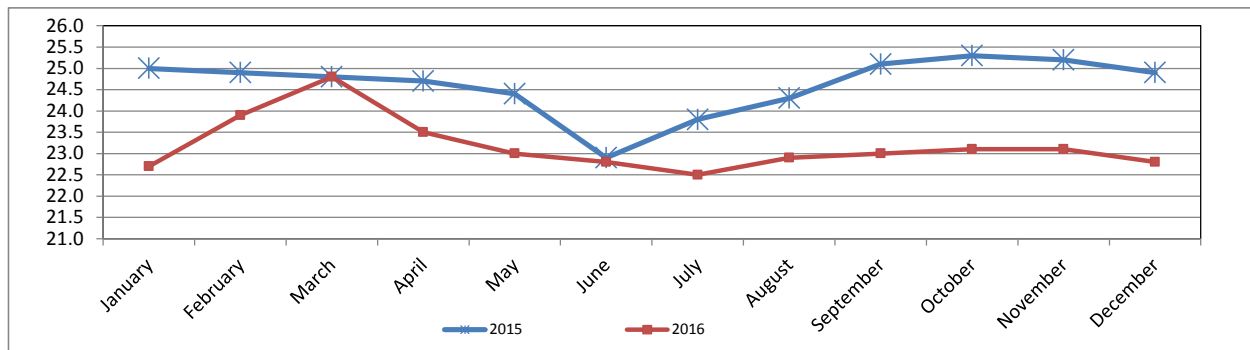
STATION TEMPERATURE (STNTPX) 2015 Monthly Mean vs. 2016 Monthly Mean in Degrees Celsius



STATION TEMPERATURE (STNTPX) 2015 Monthly Minimum vs. 2016 Monthly Minimum in Degrees Celsius



STATION TEMPERATURE (STNTPX) 2015 Monthly Maximum vs. 2016 Monthly Maximum in Degrees Celsius



APPENDIX II
REPORT CERTIFICATION FORM

Report Certification Form

Alberta Airshed (if applicable)	EPA Approval or Code of Practice Registration # (if applicable)
NO	NA
Company Name (if applicable)	Industrial Operation Name (if applicable)
THREE CREEKS	986b Station
Name of the Representative of the Person Responsible (Last, First, Middle)	Position / Title of the Representative of the Person Responsible
Adekanmbi, Wunmi	Project Manager, Customer Service - Air Services
Is an External Party Certifying the Report? (If 'Yes', fill in the fields below for the external person.)	
<input type="checkbox"/> Yes <input type="checkbox"/> No	
Name of External Person Certifying the Report (Last, First, Middle)	Position / Title of External Person Certifying the Report
Company Name for the External Person Certifying the Report	Identification of Qualifications / Professional Designations of the External Person Certifying the Report

I certify that I have reviewed and verified the submitted report. I also certify that the report presented with this certification form is complete, accurate and representative of the monitoring results and timeframe.

Signature of the Representative of the Person Responsible / External Person Certifying the Report

28-02-2017

Report Issued Date (dd-mm-yyyy)